

WHAT IS CLAIMED IS:

1. A data transmission system having a local network to which plural terminal equipments are connected and whose data transmission is carried out by using a high-frequency modulation signal and a transmission line to which the local network is connected, comprising:

a demodulator which demodulates upstream high-frequency modulation signal transmitted toward the transmission line side into a data signal is installed at a node of said local network and said transmission line.

2. A data transmission system according to claim 1, further comprising a modulator which modulates a data signal demodulated by said demodulator into upstream high-frequency modulation signal at said node of said local network.

3. A data transmission system having a local network to which plural terminal equipments are connected and whose data transmission is carried out by using a high-frequency modulation signal and a transmission line to which the local network is connected, comprising:

a modem which demodulates upstream high-frequency modulation signal transmitted toward the transmission line side into a data signal and modulates said data signal into upstream high-frequency modulation signal at a node of said

local network and said transmission line.

4. A data transmission system according to claim 1,  
comprising a first modem comprising said demodulator, and a  
5 modulator which modulates a data signal obtained from  
downstream signal into downstream high-frequency modulation  
signal and transmits to said local network at said node.

5. A data transmission system according to claim 4,  
10 further comprising a second modem which modulates a data  
signal demodulated by said first modem into upstream high-  
frequency modulation signal and transmits said upstream  
high-frequency modulation signal to said transmission line,  
and demodulates downstream high-frequency modulation signal  
15 received from said transmission line into a data signal and  
outputs said data signal to said first modem.

6. A data transmission system having a local network to  
which plural terminal equipments are connected and whose  
20 data transmission is carried out by using a high-frequency  
modulation signal and a transmission line to which the local  
network is connected, comprising:

a duplex modem which demodulates upstream high-  
frequency modulation signal transmitted to said transmission  
25 line into a data signal, modulates said data signal into

upstream high-frequency modulation signal, demodulates  
downstream high-frequency modulation signal transmitted to  
said local network into a data signal and modulates said  
data signal into downstream high-frequency modulation signal  
5 at a node of said local network and said transmission line.

7. A data transmission system according to claim 2,  
further comprising an amplifier which is connected in  
parallel to a connection circuit of said demodulator and  
10 said modulator by a directional coupler/distributor of an  
upstream side and a directional coupler/distributor of a  
downstream side and which amplifies and outputs said  
downstream signal toward said local network.

15 8. A data transmission system according to claim 3,  
further comprising an amplifier which is connected in  
parallel to said modem by a directional coupler/distributor  
of an upstream side and a directional coupler/distributor of  
a downstream side and which amplifies and outputs said  
20 downstream signal toward said local network.

9. A data transmission system according to claim 5,  
further comprising an amplifier which is connected in  
parallel to a circuit of said first modem and said second  
25 modem by a directional coupler/distributor of an upstream

side and a directional coupler/distributor of a downstream side and which amplifies and outputs said downstream signal toward said local network.

5           10. A data transmission system according to claim 6, further comprising an amplifier which is connected in parallel to said duplex modem by a directional coupler/distributor of an upstream side and a directional coupler/distributor of a downstream side and which amplifies  
10 an outputs said downstream signal toward said local network.

11. A data transmission system according to any one of claims 7 to 10, further comprising:

15           a band splitter installed between an output terminal of said amplifier and said directional coupler/distributor of the downstream side; and

          a terminating resistance set at an output terminal of a low-group band pass filter of said band splitter.

20           12. A data transmission system according to claim 4, wherein said transmission line is a data transmission line and further comprising:

          a router or a terminal adaptor which inputs, modulates and outputs a data signal demodulated by said first modem to  
25 said transmission lien and which receives, demodulates said

downstream signal in said transmission line into a data signal and outputs to said first modem at a node of said local network.

5        13. A data transmission system according to any one of claims 1 to 11, wherein said transmission line is a CATV transmission line and said local network is a community TV network adjusted in a predetermined area such as a multiple dwelling house, a building, and a factory in which plural  
10 numbers of terminal equipments are connected.

14. A data transmission system according to claim 13, wherein a center of said CATV network transmission line is connected to Internet, receives upstream high-frequency  
15 modulation signal from said transmission line, demodulates it to a signal, transmits said signal to Internet, receives a signal from Internet, modulates said signal into downstream high-frequency modulation signal, and transmits  
20 it to said transmission line.

15. A data transmission system according to any one of claims 1 to 14, wherein said transmission line is connected to Internet.

25        16. A data transmission system according to any one of

claims 1 to 14, wherein said local network consists of a network comprising transmission lines which are branched in a CATV network.

5           17. A data transmission equipment, in a data transmission system having a local network to which plural terminal equipments are connected and whose data transmission is carried out by using a high-frequency modulation signal and a transmission line to which the local  
10 network is connected, installed at a node of said local network and said transmission line, comprising:

          a first modem which demodulates upstream high-frequency modulation signal into a data signal and which modulates data signal obtained from downstream high-frequency  
15 modulation signal of said transmission line into downstream high-frequency modulation signal; and

          a second modem which modulates said data signal demodulated by said first modem into upstream high-frequency modulation signal and transmits to said transmission line  
20 and which demodulates downstream high-frequency modulation signal received from said transmission line into data signal and outputs it to said first modem.

          18. A data transmission equipment, in a data  
25 transmission system having a local network to which plural

terminal equipments are connected and whose data transmission is carried out by using a high-frequency modulation signal and a transmission line to which the local network is connected, installed at a node of said local network and said transmission line, comprising:

a modem which demodulates upstream high-frequency modulation signal transmitted to said transmission line side and modulates said data signal into upstream high-frequency modulation signal.

19. A data transmission equipment, in a data transmission system having a local network to which plural terminal equipments are connected and whose data transmission is carried out by using a high-frequency modulation signal and a transmission line to which the local network is connected, installed at a node of said local network and said transmission line, comprising:

a duplex modem which demodulates upstream high-frequency modulation signal transmitted to said transmission line side into data signal and modulates said data signal into upstream high-frequency modulation signal, demodulates downstream high-frequency modulation signal transmitted to said local network side into data signal and demodulates said data signal into downstream high-frequency modulation signal.

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20. A data transmission equipment according to any one of claims 17 to 19, wherein said data transmission equipment comprises directional coupler/distributors placed on both upstream and downstream sides, a through circuit connected to said two directional coupler/distributors, and a low-group cutoff filter which does not reflect but absorbs upstream low-group band signal and lets downstream signal pass to said downstream side.

21. A data transmission equipment according to any one of claims 17 to 19, wherein said data transmission equipment comprises an amplifier which amplifies and outputs downstream signal to said local network side, directional coupler/distributors placed on input port and output port sides of said amplifier, a band splitter placed between output port of said amplifier and said directional coupler/distributor on said output port side, and a terminating resistance set on a low-group band pass filter side of said band splitter.

22. A data transmission equipment according to claim 21, further comprising a high group data band cutoff filter which is placed between input port of said amplifier and said directional coupler/distributor set on said input port



side and cutoffs downstream signal of predetermined high-group data band.

23. A data transmission equipment according to claim 18,  
5 wherein said data transmission equipment comprises a pair of  
band splitters each placed on upstream and downstream sides,  
a through circuit, connecting said two band splitter, which  
let a high-group band signal pass, or an amplifier which is  
injected in a circuit, through which said high-group band  
10 signal passes, and amplifies signal to said downstream  
direction.

24. A data transmission equipment according to claim 21,  
further comprising high-group data band cutoff filter which  
15 does not reflect and does not let a predetermined high-group  
data band signal pass is set between said input port of said  
amplifier and said output port of said directional  
coupler/distributor installed on said input side of said  
amplifier.